

Every vessel subject to Part III of Title III of the Communications Act must have a detailed inspection of the radio installation by an FCC-licensed technician in accordance with s 80.59 once every five years. The FCC-licensed technician must use the latest FCC Information Bulletin, How to Conduct an Inspection of a Small Passenger Vessel. If the ship passes the inspection, the technician will issue a Communications Act Safety Radiotelephony Certificate. Communications Act Radiotelephony Certificates may be obtained from the Commission's National Call Center--(888) 225-5322--or from its forms contractor.

**s 80.905 Vessel radio equipment.**

(a)

(a) Vessels subject to part III of title III of the Communications Act that operate in the waters described in s 80.901 of this section must, at a minimum, be equipped as follows:

(a) (1)

(1) Vessels operated solely within the communications range of a VHF public coast station or U.S. Coast Guard station that maintains a watch on 156.800 MHz while the vessel is navigated must be equipped with a VHF radiotelephone installation. Vessels in this category must not operate more than 20 nautical miles from land.

(a) (2)

(2) Vessels operated beyond the 20 nautical mile limitation specified in paragraph (a)(1) of this section, but not more than 100 nautical miles from the nearest land, must be equipped with a medium frequency transmitter capable of transmitting J3E emission and a receiver capable of reception of J3E emission within the band 1710 to 2850 kHz, in addition to the VHF radiotelephone installation required by paragraph (a)(1) of this section. The medium frequency transmitter and receiver must be capable of operation on 2670 kHz.

(a) (3)

(3) Vessels operated more than 100 nautical miles but not more than 200 nautical miles from the nearest land must:

(a) (3) (i)

(i) Be equipped with a VHF radiotelephone installation;

(a) (3) (ii)

(ii) Be equipped with an MF radiotelephone transmitter and receiver meeting the requirements of paragraph (a)(2) of this section;

and

(a) (3) (iii)

(iii) Be equipped with either:

(a) (3) (iii) (A)

(A) a single sideband radiotelephone capable of operating on all distress and safety frequencies in the medium frequency and high frequency bands listed in ss 80.369 (a) and (b), on all the ship-to-shore calling frequencies in the high frequency bands listed in s 80.369(d), and on at least four of the automated mutual-assistance vessel rescue (AMVER) system HF duplex channels (this requirement may be met by the addition of such frequencies to the radiotelephone installation required by paragraph (a)(2) of this section); or

(a) (3) (iii) (B)

(B) if operated in an area within the coverage of an INMARSAT maritime mobile geostationary satellite in which continuous alerting is available, an INMARSAT ship earth station meeting the equipment authorization rules of parts 2 and 80 of this chapter;

(a) (3) (iv)

(iv) Be equipped with a reserve power supply meeting the requirements of ss 80.917(b), 80.919, and 80.921, and capable of powering the single sideband

radiotelephone or the ship earth station (including associated peripheral equipment) required by paragraph (a)(3)(iii) of this section;

(a) (3) (v)

(v) Be equipped with a NAVTEX receiver conforming to the following performance standards: IMO Resolution A.525(13) and CCIR Recommendation 540;

(a) (3) (vi)

(vi) Be equipped with a Category I, 406 MHz satellite emergency position-indicating radiobeacon (EPIRB) meeting the requirements of s 80.1061; and,

(a) (3) (vii)

(vii) Participate in the AMVER system while engaged on any voyage where the vessel is navigated in the open sea for more than 24 hours. Copies of the AMVER Bulletin are available at: AMVER Maritime Relations, 15 and 16 Ave., U.S. Coast

Guard, Building 100, Box 22, Governors Island, New York 10024, telephone number: 212-263-7744.

(a) (4)

(4) Vessels operated more than 200 nautical miles from the nearest land must:

(a) (4) (i)

(i) Be equipped with two VHF radiotelephone installations;

(a) (4) (ii)

(ii) Be equipped with an MF radiotelephone transmitter and receiver meeting the requirements of paragraph (a)(2) of this section;

(a) (4) (iii)

(iii) Be equipped with either:

(a) (4) (iii) (A)

(A) an independent single sideband radiotelephone capable of operating on all distress and safety frequencies in the medium frequency and high frequency bands listed in ss 80.369(a) and (b), on all of the ship-to-shore calling frequencies in the high frequency bands listed in s 80.369(d), and on at least four of the automated mutual-assistance vessel rescue (AMVER) system HF duplex channels; or

(a) (4) (iii) (B)

(B) If operated in an area within the coverage of an INMARSAT maritime mobile geostationary satellite in which continuous alerting is available, an INMARSAT ship earth station meeting the equipment authorization rules of Parts 2 and 80 of this Chapter;

(a) (4) (iv)

(iv) Be equipped with a reserve power supply meeting the requirements of ss 80.917(b), 80.919, and 80.921, and capable of powering the single sideband radiotelephone or the ship earth station (including associated peripheral equipment) required by paragraph (a)(4)(iii) of this section;

(a) (4) (v)

(v) Be equipped with a NAVTEX receiver conforming to the following performance standards: IMO Resolution A.525(13) and CCIR Recommendation 540;

(a) (4) (vi)

(vi) Be equipped with a Category I, 406 MHz satellite emergency position-indicating radiobeacon (EPIRB) meeting the requirements of s 80.1061;

(a) (4) (vii)

(vii) Be equipped with a radiotelephone distress frequency watch receiver meeting the requirements of s 80.269;

(a) (4) (viii)

(viii) Be equipped with an automatic radiotelephone alarm signal generator meeting the requirements of s 80.221; and

(a) (4) (ix)

(ix) Participate in the AMVER system while engaged on any voyage where the vessel is navigated in the open sea for more than 24 hours. Copies of the AMVER Bulletin are available at: AMVER Maritime Relations, 15 and 16 Ave., U.S. Coast Guard, Building 100, Box 22, Governors Island, New York 10024, telephone number: 212-263-7744.

26, Governor's Island, N.Y. 10004-5034, telephone number (212) 668-7764.

(b)

(b) For a vessel that is navigated within the communication range of a VHF public coast station or U.S. Coast Guard station, but beyond the 20-nautical mile limitation specified in paragraph (a)(1) of this section, an exemption from the band 1605 to 2850 kHz installation requirements may be granted if the vessel is equipped with a VHF transmitter and receiver. An application for exemption must include a chart showing the route of the voyage or the area of operation of the vessel, and the receiving service area of the VHF public coast or U.S. Coast Guard station. The coverage area of the U.S. Coast Guard station must be based on written information from the District Commander, U.S. Coast Guard, a copy of which must be furnished with the application. The coverage area of a public coast station must be computed by the method specified in Subpart P of this Part.

(c)

(c) The radiotelephone installation must be installed to insure safe operation of the equipment and to facilitate repair. It must be protected against the vibration, moisture, temperature, and excessive currents and voltages.

(d)

(d) A VHF radiotelephone installation or a remote unit must be located at each steering station except those auxiliary steering stations which are used only during brief periods for docking or for close-in maneuvering. A single portable radiotelephone set meets the requirements of this paragraph if adequate permanent mounting arrangements with suitable power provision and antenna feed are installed at each operator steering station. Additionally, for vessels of more than 100 gross tons, the radiotelephone installation must be located at the level of the main wheelhouse or at least one deck above the vessel's main deck.

#### **s 80.907 Principal operating position.**

The principal operating position of the radiotelephone installation on vessels over 100 gross tons must be in the room from which the vessel is normally steered while at sea. If the station can be operated from any location other than the principal operating position, a positive means must be provided at the principal operating position to take full control of the station.

#### **s 80.909 Radiotelephone transmitter.**

(a)

(a) The medium frequency transmitter must have a peak envelope output power of at least 60 watts for J3E emission on 2182 kHz and at least one ship-to-shore working frequency within the band 1605 to 2850 kHz enabling communication with a public coast station if the region in which the vessel is navigated is served by a public coast station operating in this band.

(b)

(b) The single sideband radiotelephone must be capable of operating on maritime frequencies in the band 1710 to 27500 kHz with a peak envelope output power of at least 120 watts for J3E emission ~~and H3E emission~~ on 2182 kHz and J3E emission on the distress and safety frequencies listed in s 80.369(b). ~~Single sideband radios installed on or before February 2, 1992, may be used until February 2, 1997, provided such radios are capable of operating on the frequencies listed in ss 80.369 (a) and (b), and at least half of the frequencies listed in s 80.369(d).~~

(c)

(c) The transmitter complies with the power output requirements specified in paragraphs (a) or (b) of this section when:

(c) (1)

(1) The transmitter can be adjusted for efficient use with an actual ship station transmitting antenna meeting the requirements of s 80.923 of this part; and

(c) (2)

(2) The transmitter, with normal operating voltages applied, has been demonstrated to deliver its required output power on the frequencies specified in paragraphs (a) or (b) of this section into either an artificial antenna consisting of a series network of 10 ohms effective resistance and 200 picofarads capacitance or an artificial antenna of 50 ohms nominal impedance. An individual demonstration of power output capability of the transmitter, with the radiotelephone installation normally installed on board ship, may be required.

(d)

(d) The single sideband radiotelephone must be capable of transmitting clearly perceptible signals from ship to shore. The transmitter complies with this requirement if it is capable of enabling communication with a public coast station on working frequencies in the 4000 to 27500 kHz band specified in s 80.371(b) of this part under normal daytime operating conditions.

**s 80.911 VHF transmitter.**

(a)

(a) The transmitter must be capable of transmission of G3E emission on 156.800 MHz, 156.300 MHz, and on the ship-to-shore working frequencies necessary to communicate with public coast stations serving the area in which the vessel is navigated.

(b)

(b) The transmitter must be adjusted so that the transmission of speech normally produces peak modulation within the limits 75 percent and 100 percent.

(c)

(c) The transmitter must be certificated to transmit between 20 watts and 25 watts, on each of the frequencies 156.300 MHz, 156.800 MHz and on ship-to-shore public correspondence channels, into 50 ohms effective resistance when operated with a primary supply voltage of 13.6 volts DC.

(d)

(d) When an individual demonstration of the capability of the transmitter is necessary the output power requirements prescribed in this paragraph must be met as follows:

(d) (1)

(1) Measurements of primary supply voltage and transmitter output power must be made with the equipment drawing energy only from ship's battery;

(d) (2)

(2) The primary supply voltage, measured at the power input terminals to the transmitter, and the output power of the transmitter, terminated in a matching artificial load, must be measured at the end of 10 minutes of continuous operation of the transmitter at its full power output.

(d) (3)

(3) The primary supply voltage must not be less than 11.5 volts.

(d) (4)

(4) The transmitter output power must be not less than 15 watts.

(d) (5)

(5) For primary supply voltages, measured in accordance with the procedures of this paragraph, greater than 11.5 volts, but less than 12.6 volts, the required transmitter output power shall be equal to or greater than the value calculated from the formula

$$P=4.375 (V)^{-35.313}$$

where V equals the measured primary voltage and P is the calculated output power in watts.

**s 80.913 Radiotelephone receivers.**

(a)

(a) If a medium frequency radiotelephone installation is provided, the watch receiver must be capable of effective reception of J3E emissions, be connected to the antenna system specified by s 80.923, and be preset to, and capable of accurate and convenient selection of, the frequencies 2182 kHz, 2638 kHz, and the receiving frequency(s) of public coast stations serving the area in which the vessel is navigated.

(b)

(b) If a single sideband radiotelephone installation is provided, the receiver must be capable of reception of H3E and J3E emissions on 2182 kHz and J3E emission on any receiving frequency authorized pursuant to s 80.909 of this part.

(c)

(c) If a very high frequency radiotelephone installation is provided, the receiver used for maintaining the watch required by s 80.303 must be capable of effective reception of G3E emission, be connected to the antenna system specified by s 80.923 and be preset to, and capable of selection of, the frequencies 156.300 MHz, 156.800 MHz, and the receiving frequency(s) of public coast stations serving the area in which the vessel is navigated.

(d)

(d) One or more loudspeakers must be provided to permit reception on 2182 kHz or 156.800 MHz at the principal operating position and at any other place where listening is performed.

(e)

(e) Any receiver provided as a part of the radiotelephone installation must have a sensitivity of at least 50 microvolts in the case of MF equipment, and 1 microvolt in the case of HF or VHF equipment.

(f)

(f) The receiver required in paragraphs (a), (b) or (c) of this section must be capable of efficient operation when energized by the main source of energy. When a reserve source of energy is required pursuant to s 80.905 or s 80.917 of this part, the receiver must also be capable of efficient operation when energized by the reserve source of energy.

(g)

(g) The sensitivity of a receiver is the strength in microvolts of a signal, modulated 30 percent at 400 Hertz, required at the receiver input to produce an audio output of 50 milliwatts to the loudspeaker with a signal-to-noise ratio of at least 6 decibels. Evidence of a manufacturer's rating or a demonstration of the sensitivity of a required receiver computed on this basis must be furnished upon request of the Commission.

**s 80.915 Main power supply.**

(a)

(a) There must be readily available for use under normal load conditions a main power supply sufficient to simultaneously energize the radiotelephone transmitter at its required antenna power, and the required receiver. Under this load condition the potential of the main power supply at the power input terminals of the radiotelephone installation must not deviate from its rated potential by more than 10 percent on vessels completed on or after March 1, 1957, nor by more than 15 percent on vessels completed before that date.

(b)

(b) When the main power supply consists of batteries, they must be installed as high above the bilge as practicable, secured against shifting with motion of the vessel, and accessible with not less than 26 cm (10 in.) head room.

(c)

(c) Means must be provided for adequately charging any batteries used as a main power supply. There must be a device which gives a continuous indication of the rate and polarity of the charging current during charging.

**s 80.917 Reserve power supply.**

(a)

(a) A vessel of more than 100 gross tons the keel of which was laid after March 1, 1957, must have a reserve power supply located on the same deck as the main wheel house or at least one deck above the vessel's main deck, unless the main power supply is so situated.

(b)

(b) The reserve power supply must be independent of the ship's propulsion and of any other electrical system, and be sufficient to simultaneously energize the radiotelephone transmitter at its required output power, and the receiver. The reserve power supply must be available for use at all times.

(c)

(c) When the reserve power supply consists of batteries, they must be installed as high above the bilge as practicable, secured against shifting with motion of the vessel, and accessible with not less than 26 cm (10 in.) head room.

(d)

(d) The reserve power supply must be located as near the required transmitter and receiver as practicable.

(e)

(e) All reserve power supply circuits must be protected from overloads.

(f)

(f) Means must be provided for charging any storage batteries used as a reserve power supply for the required radiotelephone installation. There must be a device which will give continuous indication of the rate and polarity of the charging current during charging.

(g)

(g) The cooling system of each internal combustion engine used as a part of the reserve power supply must be adequately treated to prevent freezing or overheating consistent with the season and route to be travelled by the particular vessel involved.

**s 80.919 Required capacity.**

If either the main or reserve power supply includes batteries, these batteries must have sufficient reserve capacity to permit proper operation of the required transmitter and receiver for at least 3 hours under normal working conditions.

**s 80.921 Proof of capacity.**

(a)

(a) When directed by a representative of the Commission the vessel must prove by demonstration as prescribed in paragraphs (b), (c), (d) and (e) of this section, that the requirements of s 80.919 are met.

(b)

(b) Proof of the ability of a storage battery used as a main or reserve power supply to operate over the 3-hour period established by a discharge test over the prescribed period of time, when supplying power at the voltage required for an electrical loss as prescribed by paragraph (d) of this section.

(c)

(c) When the required power supply consists of an engine-driven generator, proof of the adequacy of the engine fuel supply to operate the unit over the 3-hour period of time may be established by using as a basis the fuel consumption during a 1 hour period when supplying power, at the voltage required for operating an electrical load as prescribed by paragraph (d) of this section.

(d)

(d) In determining the required electrical load the following formula must be used:

(d) (1)

(1) One-half of the current of the required transmitter at its rated output power; plus

(d) (2)

(2) Current of the required receiver; plus

(d) (3)

(3) Current of electric light, if required by s 80.925; plus

(d) (4)

(4) The sum of the current of all other loads the reserve power supply may provide in time of emergency.

(e)

(e) At the conclusion of the test specified in paragraphs (b) and (c) of this section, no part of the main or reserve power supply must have an excessive temperature rise, nor must the specific gravity or voltage of any storage battery be below the 90 percent discharge point.

**s 80.923 Antenna system.**

An antenna must be provided in accordance with the applicable requirements of s 80.81 of this part which is as efficient as practicable for the transmission and reception of radio waves. The construction and installation of this antenna must insure proper emergency operation.

**s 80.925 Electric light.**

(a)

(a) If the vessel is navigated at night an electric light or dial lights which clearly illuminate the operating controls must be installed to provide illumination of the operating controls at the principal operating position.

(b)

(b) The electric light must be energized from the main power supply and, if a reserve power supply for the radiotelephone installation is required, from the reserve power supply.

**s 80.927 Antenna radio frequency indicator.**

The transmitter must be equipped with a device which provides visual indication whenever the transmitter is supplying power to the antenna.

**s 80.929 Nameplate.**

A durable nameplate must be mounted on the required radiotelephone equipment. When the transmitter and receiver comprise a single unit, one nameplate is sufficient. The nameplate must show the name of the manufacturer and the type or model number.

**s 80.931 Test of radiotelephone installation.**

Unless normal use of the radiotelephone installation demonstrates that the equipment is in proper operating condition, a test communication on a required frequency in the 1605 to 27500 kHz band or the 156 to 162 MHz band must be made by a qualified operator each day the vessel is navigated. If the equipment is not in proper operating condition, the master must be promptly notified.

**s 80.933 General small passenger vessel exemptions.**

(a)

(a) Subject U.S. vessels less than 50 gross tons which are navigated not more than 300 meters (1,000 feet) from the nearest land at mean low tide are exempt from the provisions of Title III, Part III of the Communications Act.

(b)

(b) All U.S. passenger vessels of less than 100 gross tons, not subject to the radio provisions of the Safety Convention, ~~are exempt from the radiotelegraph provisions of Part II of Title III of the Communications Act,~~ provided that the vessels are equipped with a radiotelephone installation fully complying with subpart S of this part.

(c)

~~(c) Prior to February 1, 1999, U.S. passenger vessels of less than 100 gross tons are exempt from the radiotelegraph requirements of Part II of Title III of the Communications Act and the MF radiotelephone requirements of this subpart as well as Regulations 7 to 11 of Chapter IV of the Safety Convention if the following criteria are fully met:~~

~~(c) (1)~~



(1) The ship is equipped with a VHF radiotelephone installation meeting the requirements of this subpart;

(c) (2)

(2) While navigating more than three nautical miles from the nearest land, the ship is equipped with:

(c) (2) (i)

(i) A Category 1, 406 MHz EPIRB meeting the requirements of s 80.1061;

(c) (2) (ii)

(ii) A NAVTEX receiver meeting the requirements of s 80.1101(c)(1); and

(c) (2) (iii)

(iii) Three two-way VHF radiotelephone apparatus and two radar transponders meeting the requirements of s 80.1095.

(c) (3)

(3) The ship remains within communications range of U.S. Coast Guard or public coast stations operating in the band 156-162 MHz;

(c) (4)

(4) The routes of the voyage are never more than 20 nautical miles from the nearest land or, alternatively, not more than 200 nautical miles between two consecutive ports, and are limited to the following domestic and international voyages:

(c) (4) (i)

(i) In waters contiguous to Hawaii, the Bahama Islands and the islands in the Caribbean Sea, including the Greater Antilles, Lesser Antilles, and the coastal waters of Venezuela between the Mouth of the Orinoco River and the Gulf of Venezuela;

(c) (4) (ii)

(ii) In waters contiguous to the coast of Southern California from Point Conception south to Cape San Lucas, Mexico, the islands of San Miguel, Santa Rosa, Santa Cruz, Anacapa, San Nicolas, Santa Barbara, Santa Catalina, and San Clemente are considered to be within these waters; and,

(c) (4) (iii)

(iii) In waters of the Pacific Northwest between Tacoma, Washington and the waters of British Columbia, Canada, as far north as Queen Charlotte Strait, never in the open sea.

(d)

(d) Prior to February 1, 1999, U.S. passenger vessels of less than 100 gross tons are exempt from the radiotelegraph requirements of Part II of Title III of the Communications Act, as well as Regulations 7 to 11 of Chapter IV of the Safety Convention, if the following criteria are fully met:

(d) (1)

(1) The ship is equipped in accordance with paragraphs (c)(1) and (c)(2) of this section;

(d) (2)

(2) The ship is equipped with a MF radiotelephone installation meeting the requirements of this subpart;

(d) (3)

(3) The routes of the voyage are never more than 20 nautical miles from the nearest land or, alternatively, not more than 100 nautical miles between two consecutive ports, and are limited to international voyages between Florida and the Bahama Islands.

(e)

(e) These exemptions may be terminated at any time without hearing, if in the Commission's discretion, the need for such action arises.

s 80.935 Station clock.

Each station subject to this subpart must have a working clock or timepiece readily available to the operator.

SUBPART T--RADIOTELEPHONE INSTALLATION REQUIRED FOR VESSELS ON THE GREAT  
LAKES  
STATIONS ON SHIPBOARD

**s 80.951 Applicability.**

*NOT  
ADDRESSED  
IN THIS  
MPA-M*

The Agreement Between the United States of America and Canada for Promotion of Safety on the Great Lakes by Means of Radio, 1973, applies to vessels of all countries when navigated on the Great Lakes. The Great Lakes Radio Agreement defines the Great Lakes as "all waters of Lakes Ontario, Erie, Huron (including Georgian Bay), Michigan, Superior, their connecting and tributary waters and the River St. Lawrence as far east as the lower exit of the St. Lambert Lock at Montreal in the Province of Quebec, Canada," but does not include such of the connecting and tributary waters as may be specified in the Technical Regulations. The Technical Regulations do not include any connecting and tributary waters except the St. Mary's River, the St. Clair River, Lake St. Clair, the Detroit River and the Welland Canal. A vessel to which the Great Lakes Radio Agreement applies and which falls into the specific categories by paragraph (a), (b) or (c) of this section and not excepted by paragraph (d) or (e) of this section must comply with this subpart while navigated on the Great Lakes.

- (a)
  - (a) Every vessel 20 meters (65 feet) or over in length (measured from end to end over the deck, exclusive of sheer).
- (b)
  - (b) Every vessel engaged in towing another vessel or floating object, except:
    - (b) (1)
      - (1) Where the maximum length of the towing vessel, measured from end to end over the deck exclusive of sheer, is less than 8 meters (26 feet) and the length or breadth of the tow, exclusive of the towing line, is less than 20 meters (65 feet);
    - (b) (2)
      - (2) Where the vessel towed complies with this subpart;
    - (b) (3)
      - (3) Where the towing vessel and tow are located within a booming ground (an area in which logs are confined); or
    - (b) (4)
      - (4) Where the tow has been undertaken in an emergency and neither the towing vessel nor the tow can comply with this part.
- (c)
  - (c) Any vessel carrying more than six passengers for hire.
- (d)
  - (d) The requirements of the Great Lakes Radio Agreement do not apply to:
    - (d) (1)
      - (1) Ships of war and troop ships;
    - (d) (2)
      - (2) Vessels owned and operated by any national government and not engaged in trade.
- (e)
  - (e) The Commission may if it considers that the conditions of the voyage or voyages affecting safety (including but not

necessarily limited to the regularity, frequency and nature of the voyages, or other circumstances) are such as to render full application of the Great Lakes Agreement unreasonable or unnecessary, exempt partially, conditionally or completely, any individual vessel for one or more voyages or for any period of time not exceeding one year.

**s 80.953 Inspection and certification.**

(a)

(a) Each U.S. flag vessel subject to the Great Lakes Agreement must have an inspection of the required radiotelephone installation at least once every 13 months. This inspection must be made while the vessel is in active service or within not more than one month before the date on which it is placed in service.

(b)

(b) An inspection and certification of a ship subject to the Great Lakes Agreement must be made by a technician holding one of the following: a General Radiotelephone Operator License, a GMDSS Radio Maintainer's License, a Second Class Radiotelegraph Operator's Certificate, or a First Class Radiotelegraph Operator's Certificate. Additionally, the technician must not be the vessel's owner, operator, master, or an employee of any of them. The results of the inspection must be recorded in the ship's radiotelephone log and include:

(b) (1)

(1) The date the inspection was conducted;

(b) (2)

(2) The date by which the next inspection needs to be completed;

(b) (3)

(3) The inspector's printed name, address, class of FCC license (including the serial number);

(b) (4)

(4) The results of the inspection, including any repairs made; and

(b) (5)

(5) The inspector's signed and dated certification that the vessel meets the requirements of the Great Lakes Agreement and the Bridge-to-Bridge Act contained in Subparts T and U of this part and has successfully passed the inspection.

(c)

(c) The vessel owner, operator, or ship's master must certify that the inspection required by paragraph (b) was satisfactory.

(d)

(d) The ship's log must be retained on-board the vessel for at least two years from the date of the inspection.

**s 80.955 Radiotelephone installation.**

(a)

(a) Each U.S. flag vessel of less than 38 meters (124 feet) in length while subject to the Great Lakes Agreement must have a radiotelephone meeting the provisions of this subpart in addition to the other rules in this part governing ship stations using telephony.

(b)

(b) Each U.S. flag vessel of 38 meters (124 feet) or more in length while subject to the Great Lakes Agreement must have a minimum of two VHF radiotelephone installations in operating condition meeting the provisions of this subpart. The second VHF installation must be electrically separate from the first VHF installation. However, both may be connected to the main power supply provided one installation can be operated from a separate power supply located as high as practicable on the vessel.

(c)

(c) This paragraph does not require or prohibit the use of other frequencies for use by the same "radiotelephone installation" for communication authorized by this part.

**s 80.956 Required frequencies and uses.**

(a)

(a) Each VHF radiotelephone installation must be capable of transmitting and receiving G3E emission as follows:

(a) (1)

(1) Channel 16--156.800 MHz--Distress, Safety and Calling; and

(a) (2)

(2) Channel 6--156.300 MHz--Primary intership.

(b)

(b) The radiotelephone station must have additional frequencies as follows:

(b) (1)

(1) Those ship movement frequencies appropriate to the vessel's area of operation: Channel 11--156.550 MHz, Channel 12--156.600 MHz, or Channel 14--156.700 MHz.

(b) (2)

(2) The navigational bridge-to-bridge frequency, 156.650 MHz (channel 13).

(b) (3)

(3) Such other frequencies as required for the vessel's service.

(b) (4)

(4) One channel for receiving marine navigational warnings for the area of operation.

(c)

(c) Every radiotelephone station must include one or more transmitters, one or more receivers, one or more sources of energy and associated antennas and control equipment. The radiotelephone station, exclusive of the antennas and source of energy, must be located as high as practicable on the vessel, preferably on the bridge, and protected from water, temperature, and electrical and mechanical noise.

**s 80.957 Principal operating position.**

(a)

(a) The principal operating position of the radiotelephone installation must be on the bridge, convenient to the conning position.

(b)

(b) When the radiotelephone station is not located on the bridge, operational control of the equipment must be provided at the location of the radiotelephone station and at the bridge operating position. Complete control of the equipment at the bridge operating position must be provided.

<General Materials (GM) - References, Annotations, or Tables>

**s 80.959 Radiotelephone transmitter.**

(a)

(a) The transmitter must be capable of transmission of G3E emission on the required frequencies.

(b)

(b) The transmitter must deliver a carrier power of between 10 watts and 25 watts into 50 ohms nominal resistance when operated with its rated supply voltage. The transmitter must be capable of readily reducing the carrier power to one watt or less.

(c)

(c) To demonstrate the capability of the transmitter, measurements of primary supply voltage and transmitter output power must be made with the equipment operating on the vessel's main power supply, as follows:

(c) (1)

(1) The primary supply voltage measured at the power input terminals to the transmitter terminated in a matching artificial load, must be measured at the end of 10 minutes of continuous operation of the transmitter at its rated power output.

(c) (2)

(2) The primary supply voltage, measured in accordance with the procedures of this paragraph, must be not less than 11.5 volts.

(c) (3)

(3) The transmitter at full output power measured in accordance with the procedure of this paragraph must not be less than 10 watts.

#### **s 80.961 Radiotelephone receiver.**

(a)

(a) The receiver must be capable of reception of G3E emission on the required frequencies.

(b)

(b) The receiver must have a sensitivity of at least 2 microvolts across 50 ohms for a 20 decibel signal-to-noise ratio.

#### **s 80.963 Main power supply.**

(a)

(a) A main power supply must be available at all times while the vessel is subject to the requirements of the Great Lakes Radio Agreement.

(b)

(b) Means must be provided for charging any batteries used as a source of energy. A device which during charging of the batteries gives a continuous indication of charging current must be provided.

#### **s 80.965 Reserve power supply.**

(a)

(a) Each passenger vessel of more than 100 gross tons and each cargo vessel of more than 300 gross tons must be provided with a reserve power supply independent of the vessel's normal electrical system and capable of energizing the radiotelephone installation and illuminating the operating controls at the principal operating position for at least 2 continuous hours under normal operating conditions. When meeting this 2 hour requirement, such reserve power supply must be located on the bridge level or at least one deck above the vessel's main deck.

(b)

(b) Instead of the independent power supply specified in paragraph (a) of this section, the vessel may be provided with an auxiliary radiotelephone installation having a power source independent of the vessel's normal electrical system. Any such installation must comply with ss 80.955, 80.956, 80.957, 80.959, 80.961, 80.969 and 80.971, as well as the general technical standards contained in this part. Additionally, the power supply for any such auxiliary radiotelephone must be a "reserve power supply" for the purposes of paragraphs (c), (d) and (e) of this section.

(c)

(c) Means must be provided for adequately charging any batteries used as a reserve power supply for the required radiotelephone installation. A device must be provided which, during charging of the batteries, gives a continuous indication of charging.

(d)

(d) The reserve power supply must be available within one minute.

(e)

(e) The station licensee, when directed by the Commission, must prove by demonstration as prescribed in paragraphs (e)(1), (2), (3) and (4) of this section that the reserve power supply is capable of meeting the requirements of paragraph (a) of this section as follows:

(e) (1)

(1) When the reserve power supply includes a battery, proof of the ability of the battery to operate continuously for the required time must be established by a discharge test over the required time, when supplying power at the voltage required for normal operation to an electric load as prescribed by paragraph (e)(3) of this section.

(e) (2)

(2) When the reserve power supply includes an engine driven generator, proof of the adequacy of the engine fuel supply to operate the unit continuously for the required time may be established by using as a basis the fuel consumption during a continuous period of one hour when supplying power, at the voltage required for normal operation, to an electrical load as prescribed by paragraph (3)(e) of this section.

(e) (3)

(3) For the purposes of determining the electrical load to be supplied, the following formula must be used:

(e) (3) (i)

(i) One-half of the current of the radiotelephone while transmitting at its rated output, plus one-half the current while not transmitting; plus

(e) (3) (ii)

(ii) Current of the required receiver; plus

(e) (3) (iii)

(iii) Current of the source of illumination provided for the operating controls prescribed by Section 80.969; plus

(e) (3) (iv)

(iv) The sum of the currents of all other loads to which the reserve power supply may provide power in time of emergency or distress.

(e) (4)

(4) At the conclusion of the test specified in paragraphs (e)(1) and (2) of this section, no part of the reserve power supply must have excessive temperature rise, nor must the specific gravity or voltage of any battery be below the 90 percent discharge point.

The antenna must be omnidirectional, vertically polarized and located as high as practicable on the masts or superstructure of the vessel.

**s 80.969 Illumination of operating controls.**

- (a)
  - (a) The radiotelephone must have dial lights which illuminate the operating controls at the principal operating position.
  - (b) Instead of dial lights, a light from an electric lamp may be provided to illuminate the operating controls of the radiotelephone at the principal operating position. If a reserve power supply is required, arrangements must permit the use of that power supply for illumination within one minute.

**s 80.971 Test of radiotelephone installation.**

At least once during each calendar day a vessel subject to the Great Lakes Radio Agreement must test communications on 156.800 MHz to demonstrate that the radiotelephone installation is in proper operating condition unless the normal daily use of the equipment demonstrates that this installation is in proper operating condition. If equipment is not in operating condition, the master must have it restored to effective operation as soon as possible.

**SUBPART U--RADIOTELEPHONE INSTALLATIONS REQUIRED BY THE BRIDGE-TO-BRIDGE ACT STATIONS ON SHIPBOARD**

**s 80.1001 Applicability.**

The Bridge-to-Bridge Act and the regulations of this part apply to the following vessels in the navigable waters of the United States:

- (a)
  - (a) Every power-driven vessel of 20 meters or over in length while navigating;
  - (b) Every vessel of 100 gross tons and upward carrying one or more passengers for hire while navigating;
  - (c) Every towing vessel of 7.8 meters (26 feet) or over in length, measured from end to end over the deck excluding sheer, while navigating; and
  - (d) Every dredge and floating plant engaged, in or near a channel or fairway, in operations likely to restrict or affect navigation of other vessels. An unmanned or intermittently manned floating plant under the control of a dredge shall not be required to have a separate radiotelephone capability.

**s 80.1003 Station required.**

Vessels subject to the Bridge-to-Bridge Act must have a radiotelephone installation to enable the vessel to participate in navigational communications.

This radiotelephone installation must be continuously associated with the ship even though a portable installation is used. Foreign vessels coming into U.S. waters where a bridge-to-bridge station is required may fulfill this requirement by use of portable equipment brought aboard by the pilot. Non portable equipment, when used, must be arranged to facilitate repair. The equipment must be protected against vibration, moisture, temperature and excessive currents and voltages.

**s 80.1005 Inspection of station.**

The bridge-to-bridge radiotelephone station will be inspected on vessels subject to regular inspections pursuant to the requirements of Parts II and III of Title III of the Communications Act, the Safety Convention or the Great Lakes Agreement at the time of the regular inspection. If after such inspection, the Commission determines that the Bridge-to-Bridge Act, the rules of the Commission and the station license are met, an endorsement will be made on the appropriate document. The validity of the endorsement will run concurrently with the period of the regular inspection. Each vessel must carry a certificate with a valid endorsement while subject to the Bridge-to-Bridge Act. All other bridge-to-bridge stations will be inspected from time to time. An inspection of the bridge-to-bridge station on a Great Lakes Agreement vessel must normally be made at the same time as the Great Lakes Agreement inspection is conducted by a technician holding one of the following: a General Radiotelephone Operator License, a GMDSS Radio Maintainer's License, ~~a Second Class Radiotelegraph Operator's Certificate, or a First Class Radiotelegraph Operator's Certificate~~. Additionally, the technician must not be the vessel's owner, operator, master, or an employee of any of them. Ships subject to the Bridge-to-Bridge Act may, in lieu of an endorsed certificate, certify compliance in the station log required by section 80.409(f).

**s 80.1007 Bridge-to-bridge radiotelephone installation.**

Use of the bridge-to-bridge transmitter must be restricted to the master or person in charge of the vessel, or the person designated by the master or person in charge to pilot or direct the movement of the vessel. Communications must be of a navigational nature exclusively.

**s 80.1009 Principal operator and operating position.**

The principal operating position of the bridge-to-bridge station must be the vessel's navigational bridge or, in the case of dredges, its main control station. If the radiotelephone installation can be operated from any location other than the principal operating position, the principal operating position must be able to take full control of the installation.

**s 80.1011 Transmitter.**



(a)

(a) The bridge-to-bridge transmitter must be capable of transmission of G3E emission on the navigational frequency 156.650 MHz (Channel 13) and the Coast Guard liaison frequency 157.100 MHz (Channel 22A). Additionally, the bridge-to-bridge transmitter must be capable of transmission of G3E emission on the navigational frequency of 156.375 MHz (Channel 67) while transiting any of the following waters:

(a) (1)

(1) The lower Mississippi River from the territorial sea boundary, and within either the Southwest Pass safety fairway or the South Pass safety fairway specified in s 166.200 of the U.S. Coast Guard's Rules, 33 CFR 166.200, to mile 242.4 AHP (Above Head of Passes) near Baton Rouge;

(a) (2)

(2) The Mississippi River-Gulf Outlet from the territorial sea boundary, and within the Mississippi River-Gulf outlet Safety Fairway specified in Section 166.200 of the U.S. Coast Guard's Rules, 33 CFR 166.200, to that channel's junction with the Inner Harbor Navigation Canal; and

(a) (3)

(3) The full length of the Inner Harbor Navigation Canal from its junction with the Mississippi River to that canal's entry to Lake Pontchartrain at the New Seabrook vehicular bridge.

(b)

(b) [Reserved]

#### **s 80.1013 Receiver.**

The bridge-to-bridge receiver must be capable of reception of G3E emission on the navigational frequency 156.650 MHz (Channel 13) and the Coast Guard liaison frequency 157.100 MHz (Channel 22A). In addition, the bridge-to-bridge receiver must be capable of reception of G3E emission on the navigational frequency of 156.375 MHz (Channel 67) while transiting in the waters of the lower Mississippi River as described in ss 80.1011(a)(1), (a)(2) and (a)(3) of this part.

#### **s 80.1015 Power supply.**

(a)

(a) There must be readily available for use under normal load conditions, a power supply sufficient to simultaneously energize the bridge-to-bridge transmitter at its required antenna power, and the bridge-to-bridge receiver. Under this load condition the voltage of the power supply at the power input terminals of the bridge-to-bridge radiotelephone installation must not deviate from its rated voltage by more than 10 percent on vessels completed on or after March 1, 1957, nor by more than 15 percent on vessels completed before that date.

(b)

(b) When the power supply for a nonportable bridge-to-bridge radiotelephone installation consists of or includes batteries, they must be installed as high above the bilge as practicable, secured against shifting with motion of the vessel, and accessible with not less than 26 cm (10 in.) head room.

(c)

(c) Means must be provided for adequately charging any rechargeable batteries used in the vessel's bridge-to-bridge radiotelephone installation. There must be provided a device which will give a continuous indication of the charging current during charging.

**s 80.1017 Antenna system.**

(a)

(a) An antenna must be provided for nonportable bridge-to-bridge radiotelephone installations which is nondirectional and vertically polarized. The construction and installation of this antenna must insure proper operation in time of an emergency.

(b)

(b) In cases where portable bridge-to-bridge equipment is permanently associated with a vessel, the equipment must be provided with a connector for an external antenna of a type capable of meeting requirements of paragraph (a) of this section and s 80.71. The vessel must be equipped with an external antenna meeting requirements of paragraph (a) of this section and s 80.71, capable of use with the portable equipment during a normal listening watch.

**s 80.1019 Antenna radio frequency indicator.**

Each nonportable bridge-to-bridge transmitter must be equipped, at each point of control, with a carrier operated device which will provide continuous visual indication when the transmitter is supplying power to the antenna transmission line or, in lieu thereof, a pilot lamp or meter which will provide continuous visual indication when the transmitter control circuits have been placed in a condition to activate the transmitter.

**s 80.1021 Nameplate.**

A durable nameplate must be mounted on the required radiotelephone or be an integral part of it. When the transmitter and receiver comprise a single unit, one nameplate is sufficient. The nameplate must show at least the name of the manufacturer and the type or model number.

**s 80.1023 Test of radiotelephone installation.**

Unless normal use of the required radiotelephone installation demonstrates that the equipment is in proper operating condition, a test communication for this purpose must be made by a qualified operator each day the vessel is navigated. If the equipment is not in proper operating condition, the master must be promptly notified. The master must have it restored to effective operating condition as soon as possible.

**SUBPART V--EMERGENCY POSITION INDICATING RADIOBEACONS (EPIRB'S)  
STATIONS ON SHIPBOARD**

**s 80.1051 Scope.**

This subpart describes the technical and performance requirements for Classes A, B, ~~C~~ and S, and Categories 1, 2, and 3 EPIRB stations.

s 80.1053 Special requirements for Class A EPIRB stations.

- (a)
- (a) A Class A EPIRB station must meet the following:
  - (a) (1)
  - (1) Float free of a sinking ship;
  - (a) (2)
  - (2) Activate automatically when it floats free of a sinking ship;
  - (a) (3)
  - (3) Have an antenna that deploys automatically when the EPIRB activates;
  - (a) (4)
  - (4) Use A3X emission on a mandatory basis and A3E and NON emissions on an optional basis on the frequencies 121.500 MHz and 243.000 MHz;
  - (a) (5)
  - (5) Transmission of A3E or NON emission must not exceed 90 seconds and must be followed by a transmission of at least three minutes of A3X emission; each transmission of a synthesized and/or pre-recorded voice message must be preceded by the words "this is a recording";
  - (a) (6)
  - (6) The effective radiated power must not be less than 75 milliwatts after 48 hours of continuous operation and without replacement or recharge of batteries.
  - (a) (7)
  - (7) The mandatory A3X emission must be amplitude modulated with an audio signal swept downward between 1600 and 300 Hz. The sweeping range of the audio signal must be 700 Hz or greater. Its sweep repetition rate must be between 2 and 4 times per second. The modulation factor must be at least 0.85 and the modulation duty cycle must be at least 33%, but not more than 55%.
  - (a) (8)
  - (8) EPIRBs manufactured on or after October 1, 1988; EPIRBs carried as part of a ship station to satisfy USCG equipment carriage requirements that are newly installed on or after April 1, 1989; EPIRBs carried as part of a ship station to satisfy USCG equipment carriage requirements on or after August 1, 1991; and EPIRBs that are newly installed as part of a voluntarily equipped ship station after August 1, 1991, must have a clearly defined carrier frequency distinct from the modulation sidebands for the mandatory emission, A3X, and if used, the A3E or NON emissions. On 121.500 MHz at least thirty per cent of the total power emitted during any transmission cycle with or without modulation must be contained within plus or minus 30 Hz of the carrier frequency. On 243.000 MHz at least thirty per cent of the total power emitted during any transmission cycle with or without modulation must be contained within plus or minus 60 Hz of the carrier frequency. Additionally, if the type of emission is changed during transmission the carrier frequency must not shift more than plus or minus 30 Hz on 121.500 MHz and not more than plus or minus 60 Hz on 243.000 MHz. The long term stability of the carrier frequency must comply with the requirements in s 80.209(a) of this part.
  - (a) (9)
  - (9) Have a visible or audible indicator which clearly shows that the device is operating. The indicator must be activated by the RF output power. The indicator must be protected from damage due to dropping or contact with other objects;
  - (a) (10)

(10) Float in calm water with at least the upper 5 cm (2 in.) of the EPIRB out of the water and the base of the antenna at least 5 cm (2 in.) above the water, with the antenna in a vertical position completely above the water surface;

(a) (11)

(11) Be ballasted to right itself from a position of 90 degrees from its upright position in one second or less;

(a) (12)

(12) Meet the requirements of paragraphs (a) (1) through (9) of this section after a free fall into water 3 times from a height of 20 meters (66 ft.);

(a) (13)

(13) Bear a designation that indicates it is a "Class A" EPIRB;

(a) (14)

(14) Have a positive means of turning the equipment off. When an on-off switch is employed a guard must be provided to prevent inadvertent operation.

(b)

(b) Class A EPIRB's must have a manually activated test switch which must be held in position for test operation and when released return the EPIRB to its normal state. A switch guard must be provided to prevent inadvertent activation. Class A EPIRB's must also have an associated test circuit and an RF output power indicator which in the test position must:

(b) (1)

(1) Permit the operator to determine that the unit is operative;

(b) (2)

(2) Switch the transmitter output to an artificial antenna equivalent to that of the EPIRB antenna;

(b) (3)

(3) Reduce radiation to a level not to exceed 100 nanowatts at a distance of 30 meters (98 feet) irrespective of direction.

(c)

(c) EPIRBs manufactured on or after October 1, 1988, must be tested in accordance with subpart N, part 2 of this chapter. A report of the measurements must be submitted with each application for certification. EPIRBs that meet the output power characteristics of this section must have a permanent label prominently displayed on the outer casing stating, "Meets FCC Rules for improved satellite detection." This label, however, must not be placed on the equipment without authorization to do so by the Commission. Application for such authorization may be made either by submission of a new application for certification accompanied by the required fee and all information and test data required by parts 2 and 80 of this chapter or, for EPIRBs certificated prior to October 1, 1988, an application for modification accompanied by the required fee requesting such authorization, including appropriate test data and a showing that all units produced under the original certification authorization comply with the requirements of this paragraph without change to the original circuitry. If the intent is simply to add the proper label to an already approved and compliant EPIRB, a letter of notification prior to implementing the labeling requirements will be needed. This letter request should be sent to the attention of the Authorization and Evaluation Division, 7435 Oakland Mills Road, Columbus, Maryland 21046, attention EAB. The modulation, power and frequency stability requirements specified in paragraphs (a)(6), (a)(7) and (a)(8) of this section must be met under the environmental test conditions specified in subpart N, part 2 of this chapter.

(d)

(d) Vacuum tubes are not permitted in EPIRB's. The equipment must meet the requirements after extended periods of inaction while carried in vessels and

subjected to the environmental conditions prescribed. Operation into any RF load from open to short must not cause continuing degradation in performance.

(e)

(e) EPIRBs must be powered by a battery contained within the transmitter case or in a battery holder that is rigidly attached to the transmitter case. The battery connector must be corrosion resistant and positive in action and must not rely for contact upon spring force alone. The useful life of the battery is the length of time that the battery can be stored under marine environmental conditions without the EPIRB transmitter peak effective radiated power falling below 75 milliwatts prior to 48 hours of continuous operation. The month and year of the battery's manufacture must be permanently marked on the battery and the month and year upon which 50 percent of its useful life will have expired must be permanently marked on both the battery and the outside of the transmitter. The batteries must be replaced if 50 percent of their useful life has expired or if the transmitter has been used in an emergency situation. EPIRBs manufactured after April 27, 1992 must display prominently on the outer case one of the following:

The battery installation instructions, the title of the manual that contains such information, or the company name and address where the battery installation can be performed.

(f)

(f) The EPIRB must be waterproof and must not be accidentally activated by rain, seaspray, hose wash-down spray or storage in high humidity conditions. Standing water on the outer surface must not significantly affect its performance.

(g)

(g) Operating instructions understandable by untrained personnel must be permanently displayed on the equipment.

(h)

(h) The exterior of the equipment must have no sharp edges or projections. Means must be provided to fasten the EPIRB to a survival craft or person.

(i)

(i) The antenna must be deployable to its designed length and operating position in a foolproof manner. The antenna must be securely attached to the EPIRB and easy to de-ice. The antenna must be vertically polarized and omnidirectional.

**§ 80.1055 Special requirements for Class B EPIRB stations.**

(a)

(a) A Class B EPIRB must meet the following:

(a) (1)

(1) The EPIRB must be turned on automatically, as by water activated battery, or manually by an on-off switch. A positive means of turning the equipment off must be provided. Where an on-off switch is employed, a guard must be provided to prevent inadvertent operation;

(a) (2)

(2) The equipment must be designed to be deployed, its controls actuated, or its antenna erected, each by a single action task which can be performed by either hand;

(a) (3)

(3) Meet the requirements in ss 80.1053(a) (4) through (8), (a) (14), and (c) through (i) of this part. EPIRBs with water activated batteries must, additionally, meet the requirements contained in ss 80.1053 (a) (10) and (a) (11) of this part,

(a) (4)

(4) Bear a designation that indicates it is a "Class B" EPIRB.

(b)

(b) A Class B EPIRB may have a manually activated test switch which meets the requirements in s 80.1053 (b) and (c).

(c)

(c) If testing of an EPIRB with Coast Guard coordination is not possible, brief operational tests are authorized provided the tests are conducted within the first five minutes of any hour and are not longer than three audio sweeps or one second whichever is longer.

~~s 80.1057 Special requirements for Class C EPIRB stations.~~

Class C EPIRB's shall not be manufactured, imported, or sold in the United States after February 1, 1995. Class C EPIRB stations installed on board vessels before February 1, 1995, may be used until February 1, 1999, and not thereafter.

(a)

(a) A Class C EPIRB must operate on the frequencies 156.750 and 156.800 MHz, must use G3N modulation, and employ the international Radiotelephone Two Tone Alarm signal. The EPIRB transmission must be cycled. Each cycle must consist of 6 periods (T1 to T6) as shown in the table below. During T1, T2, T3, and T5 the 156.750 MHz and 156.800 MHz carriers must be modulated alternately by a 2200 Hz and a 1300 Hz tone. The modulating duration of each tone must be 250 milliseconds. The maximum tolerance of the frequency and modulating duration of each tone must be +/- 5 percent. During T4 and T6 neither of the RF carriers must be emitted. The T4 and T6 time periods must be varied according to the predetermined schedule shown in the table below. After the last cycle the transmissions must be terminated. The EPIRB must be able to recycle its transmissions in accordance to the schedule shown in the table below by placing the activation switch to the "off" and then "on" position.

Period	Duration in seconds	Transmission frequency in MHz
T sub1 ...	1.5 .....	156.800
T sub2 ...	14.5 .....	156.750
T sub3 ...	1.5 .....	156.800
T sub4 ...	40.0 (16 cycles) .....	None.
T sub4 ...	80.0 (32 cycles) .....	
T sub4 ...	160.0 (64.2 cycles) .....	
T sub4 ...	320.0 (83.2 cycles) .....	
T sub5 ...	14.5 .....	156.750
T sub6 ...	Same as T sub4 duration ..	None.

(b)

(b) The effective radiated power must not be less than 1 watt. The power must be determined according to FCC Bulletin OCE 45. The EPIRB must meet the power requirements over each of the following temperature ranges for the time period shown below. Batteries may be replaced after completion of tests for each temperature range:

(b) (1)

(1) 0 to +50 degrees Celsius for 24 hours continuous operation.

(b) (2)

(2) -20 to 0 degrees Celsius for 12 hours continuous operation.

(c)

(c) The equipment must have a transmitter, an integral antenna and a power supply. The transmitter and power supply must be in separate compartments in a single watertight case.

(d)

(d) The equipment must be provided with a visible or audible indicator which clearly shows the device is operating. The indicator must be activated by the RF output power.

(e)

(e) The equipment must operate when hand held or when floating in water after storage for extended periods under marine environmental conditions.

(f)

(f) The switch used to activate the EPIRB must indicate the state of the equipment (on-off) by the physical position of the switch. A guard must be provided to prevent inadvertent operation.

(g)

(g) The equipment case must be waterproof and resealable without special tools or sealing compounds. EPIRB operation must not be degraded by submersion in sea water for a period of 24 hours.

(h)

(h) The EPIRB must float in fresh water with the antenna vertical and completely out of the water.

(i)

(i) Vacuum tubes are not permitted in EPIRB's. The EPIRB must meet the requirements after extended periods of inaction while carried in vessels and subjected to marine environmental conditions. Operation into any load from open to short must not result in continuous degradation of performance.

(j)

(j) The exterior of the equipment must have no sharp edges or projections. Means must be provided to secure the EPIRB to a survival craft or person.

(k)

(k) Operating instructions understandable by untrained personnel must be permanently displayed on the equipment. It must indicate that the device is "to be used solely for distress purposes."

(l)

(l) The equipment must have no exposed areas or terminals that could ignite flammable gases or materials.

(m)

(m) The omnidirectional antenna must be securely attached to the case and capable of being stowed without being damaged.

(n)

(n) The equipment must meet the technical standards after being dropped into water from a height of 6 meters (20 feet).

(o)

(o) The EPIRB must meet the technical standards when plunged into sea water at +20 degrees Celsius after storage at a temperature of +50 degrees Celsius.

(p)

(p) If testing of an EPIRB with Coast Guard coordination is not possible, brief operational tests are authorized provided the tests are conducted within the first five minutes of any hour for not more than 10 seconds.

(q)

(q) The EPIRB must automatically turn off after 24 hours +/- 5 percent. It must be possible to restart the transmission sequence by placing the on-off switch momentarily in the off position and returning it to the on position.

(r)

~~(r) The EPIRB must be equipped with a visual indication of a low battery condition.~~

~~(s)~~

~~(s) The EPIRB must have a designation that indicates it is a "Class C" EPIRB.~~

**s 80.1059 Special requirements for Class S EPIRB stations.**

(a)

(a) A Class S EPIRB station must be able to float or be permanently secured to a survival craft.

(b)

(b) A Class S EPIRB able to float must meet the following:

(b) (1)

(1) Be watertight and float in calm water with at least 5 cm (2 in.) of the EPIRB out of the water and the base of the antenna at least 5 cm (2 in.) above the water, with the antenna in a vertical position completely above the water surface;

(b) (2)

(2) Be ballasted to right itself from a position 90 degrees from its upright position in one second or less;

(b) (3)

(3) Meet the requirements in s 80.1053 (a)(4) through (a)(9) after free fall into water 3 times from a height of 20 meters (67 ft.).

(c)

(c) A Class S EPIRB intended to be permanently secured to a survival craft is not required to float in water.

(d)

(d) Additionally, all Class S EPIRB's must meet the following:

(d) (1)

(1) Be capable only of manual activation by an on-off switch protected by a guard to prevent inadvertent operation;

(d) (2)

(2) Be designed to be deployed, its controls actuated, or its antenna erected, each by a single action task which can be performed by either hand;

(d) (3)

(3) Meet the requirements in ss 80.1053 (a)(4) through (a)(8) and (b) through (i) of this part;

(d) (4)

(4) Class S EPIRBs may provide either continuous or intermittent operation. If the EPIRB is designed for intermittent operation, the duty cycle must be from 50 to 60 per cent and the period two minutes plus or minus 12 seconds. In either event, the EPIRB must meet the power output characteristics described in s 80.1053(a)(8) of this part;

(d) (5)

(5) If testing of an EPIRB with Coast Guard coordination is not possible, brief operational tests are authorized provided the tests are conducted within the first five minutes of any hour and are not longer than three audio sweeps or one second whichever is longer;

(d) (6)

(6) Have a designation that indicates it is a "Class S" EPIRB.

(e)

(e) Applications for certification must include a letter from the manufacturer stating that the EPIRB meets the requirements in paragraphs (b) and (d), or (c) and (d) of this section.



**s 80.1061 Special requirements for 406.025 MHz EPIRBs.**

(a)

(a) Notwithstanding the provisions in paragraph (b) of this section, 406.025 MHz EPIRBs must meet all the technical and performance standards contained in the Radio Technical Commission for Maritime Services document titled "RTCM Recommended Standards for 406 MHz Satellite Emergency Position-Indicating Radiobeacons (EPIRBs)" dated July 31, 1987, with editorial updates of December 31, 1987 (RTCM Recommended Standards). This RTCM document is incorporated by reference in accordance with 5 U.S.C. 552(a). The document is available for inspection at Commission headquarters in Washington, DC or may be obtained from the Radio Technical Commission for Maritime Services, Post Office Box 19087, Washington, DC 20036.

(b)

(b) The 406.025 MHz EPIRB must contain as an integral part a "homing" beacon operating only on 121.500 MHz that meets all the requirements described in the RTCM Recommended Standards document described in paragraph (a) of this section. The 121.500 MHz "homing" beacon must have a continuous duty cycle that may be interrupted during the transmission of the 406.025 MHz signal only. Additionally, at least 30 percent of the total power emitted during any transmission cycle must be contained within plus or minus 30 Hz of the carrier frequency.

(c)

(c) Prior to submitting a certification application for a 406 MHz radiobeacon, the radiobeacon must be certified by a test facility recognized by one of the COSPAS/SARSAT Partners that the equipment satisfies the design characteristics associated with the measurement methods described in Appendix B of the RTCM Recommended Standards.

Additionally, the radiobeacon must be certified by a test facility recognized by the U.S. Coast Guard to certify that the equipment complies with the U.S. Coast Guard environmental and operational requirements associated with the test procedures described in Appendix A of the RTCM Recommended Standards. Information regarding the recognized test facilities may be obtained from Commandant (G-MVI), U.S. Coast Guard, 2100 2nd Street SW., Washington, DC 20593-0001

(c) (1)

(1) After a 406.025 MHz EPIRB has been certified by the recognized test facilities the following information must be submitted in duplicate to the Commandant (G-MVI), U.S. Coast Guard, 2100 2nd Street SW., Washington, DC 20593-0001:

(c) (1) (i)

(i) The name of the manufacturer or grantee and model number of the EPIRB;

(c) (1) (ii)

(ii) Copies of the certificate and test data obtained from the test facility recognized by a COSPAS/SARSAT Partner showing that the radiobeacon complies with the COSPAS/SARSAT design characteristics associated with the measurement methods described in Appendix B of the RTCM Recommended Standards;

(c) (1) (iii)

(iii) Copies of the test report and test data obtained from the test facility recognized by the U.S. Coast Guard showing that the radiobeacon complies with the U.S. Coast Guard environmental and operational characteristics associated with the measurement methods described in Appendix A of the RTCM Recommended Standards; and

(c) (1) (iv)

(iv) Instruction manuals associated with the radiobeacon, description of the test characteristics of the radiobeacon including assembly drawings, electrical

schematics, description of parts list, specifications of materials and the manufacturer's quality assurance program.

(c) (2)

(2) After reviewing the information described in paragraph (1) above the U.S. Coast Guard will issue a letter stating whether the radiobeacon satisfies all RTCM Recommended Standards.

(d)

(d) A certification application for a 406.025 MHz EPIRB submitted to the Commission must also contain a copy of the U.S. Coast Guard letter that states the radiobeacon satisfies all RTCM Recommended Standards, a copy of the technical test data, and the instruction manual(s).

(e)

(e) An identification code, issued by the National Oceanic and Atmospheric Administration (NOAA), the United States Program Manager for the 406.025 MHz COSPAS/SARSAT satellite system, must be programmed in each EPIRB unit to establish a unique identification for each EPIRB station. With each marketable EPIRB unit the manufacturer or grantee must include a postage pre-paid registration card printed with the EPIRB identification code addressed to: NOAA/NESDIS, SARSAT Operations Division, E/SP3, Federal Building 4, Washington, DC 20233. The registration card must request the owner's name, address, telephone number, type of ship, alternate emergency contact and include the following statement: "WARNING--failure to register this EPIRB with NOAA before installation could result in a monetary forfeiture being issued to the owner."

(f)

(f) To enhance protection of life and property it is mandatory that each 406.025 MHz EPIRB be registered with NOAA before installation and that information be kept up-to-date. Therefore, in addition to the identification plate or label requirements contained in ss 2.925, 2.926 and 2.1003 of this Chapter, each 406.025 MHz EPIRB must be provided on the outside with a clearly discernable permanent plate or label containing the following statement: "The owner of this 406.025 MHz EPIRB must register the NOAA identification code contained on this label with the National Oceanic and Atmospheric Administration (NOAA) whose address is: NOAA, NOAA/SARSAT Operations Division, E/SP3, Federal Building 4, Washington, D.C. 20233." Vessel owners shall advise NOAA in writing upon change of vessel or EPIRB ownership, transfer of EPIRB to another vessel, or any other change in registration information. NOAA will provide registrants with proof of registration and change of registration postcards.

(g)

(g) For 406.025 MHz EPIRBs whose identification code can be changed after manufacture, the identification code shown on the plate or label must be easily replaceable using commonly available tools.

#### **SUBPART W--GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM (GMDSS)**

This subpart contains the rules applicable to the Global Maritime Distress and Safety System (GMDSS). Every ship of the United States subject to part II of title III of the Communications Act or the Safety Convention must comply with the provisions of this subpart. The rules in this subpart are to be read in conjunction with the applicable requirements contained elsewhere in this part; however, in case of conflict, the provisions of this subpart shall govern with respect to the GMDSS. For the purposes of this subpart, distress and safety communications include distress, urgency, and safety calls and messages.

Note: No provision of this subpart is intended to eliminate, or in anyway modify, other requirements contained in this part with respect to part II of title III of the Communications Act.